

RECEIVED  
CENTRAL FAX CENTER  
APR 22 2009

### Amendments to the Claims

#### 1. (Currently Amended)

A scalable process for the highly selective, high yield separation of a desired DNA or protein product, ~~which may be a nucleic acid or a non-nucleic acid product~~, from undesired nucleic acid, comprising:

lysing any cell within which the desired product is contained;

thereafter exposing purine bases present within either the desired nucleic acid product or undesired nucleic acid by creating single-stranded regions by a process selected from the group consisting of selective thermal denaturation ~~and renaturation~~, alkaline denaturation, and restriction enzyme digestion yielding single-stranded overhangs;

capture of the desired nucleic acid product or undesired nucleic acid by a technique selective for the exposed purine bases; and

separation of the desired product from the undesired nucleic acid.

2. (Currently Amended) A process according to Claim 1 wherein the exposed purine base comprises a structural form selected from the group consisting of single stranded region of nucleic acid, Triplexes, Hairpins, Stems, Loops, ~~Cruciforms~~, ~~G-quartets~~, and modifications to the phosphate backbone.

3. (Currently Amended) A process according to Claim 1 wherein the technique comprises metal affinity ~~captured nucleic acid product comprises a moiety that is sensitive to host genomic DNA contamination during selective separation.~~

4. (Previously presented) A process according to Claim 1 wherein the captured nucleic acid product comprises single-strandedness.

5. (Currently Amended) ~~A process according to Claim 1~~ A scalable process for the highly selective, high yield separation of a desired recombinant polymerase from undesired nucleic acid, comprising:

exposing purine bases present within either the desired nucleic acid product or undesired nucleic acid by a process selected from the group consisting of selective thermal denaturation and renaturation, alkaline denaturation, and restriction enzyme digestion yielding single-stranded overhangs;

capture of the desired nucleic acid product or undesired nucleic acid by a technique selective for the exposed purine bases; and

separation of the desired product from the undesired nucleic acid;  
wherein the desired product comprises ~~comprising manufacture of~~  
recombinant ~~Taq~~ polymerase.

6. (Currently Amended) A process according to Claim 4 wherein the exposed purine bases of single-stranded undesired (or desired) nucleic acids facilitate a separation step selected from the group consisting of ~~comprising:~~  
~~immobilized metal affinity chromatography (IMAC), immobilized single-stranded DNA binding (SSB) protein, the use of immobilized nucleic acids (poly dT, poly dU, or specific sequences), and of peptide nucleic acids (PNAs).~~

7. (Currently Amended) A process according to Claim 4 5 comprising introducing single strandedness as an exposed purine base.

8. (Previously Presented) A process according to Claim 1 comprising a thermally based process in which a nucleic acid contaminant is rapidly cooled to below 65°C and is captured by an affinity method.

9. [Previously Presented] A process according to Claim 1 performed after an alkali based process in which genomic DNA or other nucleic acid contaminant is rapidly neutralized and is captured by an affinity method.

10. (Currently Amended) A scalable process for the highly selective, high yield separation of a desired DNA or protein product, ~~which may be a nucleic acid or a non-nucleic acid product~~, from undesired nucleic acid, comprising:

lysing any cell within which the desired product is contained;

exposing purine bases present within either the desired nucleic acid product or undesired nucleic acid by creating single-stranded regions by a process selected from the group consisting of selective thermal denaturation and renaturation, alkaline denaturation, and restriction enzyme digestion yielding single-stranded overhangs;

capture of the desired nucleic acid product or undesired nucleic acid by a technique selective for the exposed purine bases; and

separation of the desired product from the undesired nucleic acid wherein the process for separation of the desired product from the undesired nucleic acid ~~introducing purine base sites~~ is selected from the group

consisting of ~~comprising: selective thermal denaturation and renaturation,~~

USSN 10/737,403; Docket 015AUS of USPTO Customer 26830

Page 5 of 26

~~alkaline denaturation, the use of restriction enzymes yielding single stranded overhangs, and the use of oligonucleotide dTs, single-stranded DNA binding proteins, minerals, primers, chelated metals or other nucleic acid fragments to facilitate capture and separation of the undesired (or desired) nucleic acid from the desired (or undesired) nucleic acids.~~

11. (Previously Presented) A process according to Claim 1 wherein undesired other plasmid isoforms selected from the group consisting of open circular ("nicked") and linear plasmid isoforms are selectively removed from the desired supercoiled plasmid DNA product.

12. (Previously Presented ) A process according to Claim 9 wherein undesired other plasmid isoforms selected from the group consisting of open circular and linear plasmid isoforms are selectively removed from supercoiled plasmid DNA product.

14. (Previously Presented) A process according to Claim 1 in which the separation is achieved by adsorption on chelated metal.

15. (Previously Presented) A process according to Claim 1 in which the separation is achieved using multi-channel plates.

16. (Currently Amended) A process according to Claim 5 ~~1~~ ~~in which the separation is achieved using IMAC~~ wherein the desired product comprises Taq ~~taq~~ polymerase.

17. (Previously Presented) A process according to Claim 1 in which the separation is achieved using magnetic particles.

18. (Previously Presented) A process according to Claim 1 in which the separation of multiple samples is achieved in parallel fashion.
19. (Previously Presented) A process according to Claim 1 in which the captured nucleic acid comprises a moiety selected from BACs, PACs and YACs.
20. (Previously Presented) A process according to Claim 1 in which the captured nucleic acid comprises a plasmid.
21. (Previously Presented) A process according to Claim 1 in which the captured nucleic acid is comprises genomic DNA.
22. (Previously Presented) A process according to Claim 1 in which the captured nucleic acid comprises RNA.
23. (Previously Presented) A process according to Claim 1 in which the capture technique comprises HIC.
24. (Previously Presented) A process according to Claim 1 in which the capture technique comprises RPC.
25. Cancelled